IN BRIEF

REINVENTING CONSTRUCTION

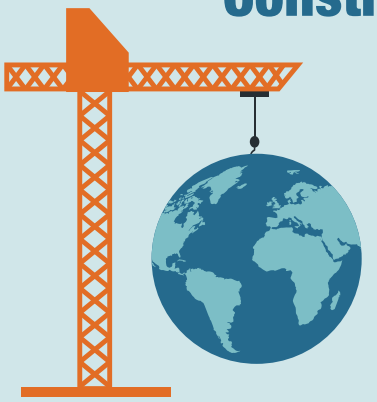
The construction sector is one of the largest in the world economy, with about $10 trillion spent on construction-related goods and services every year. However, the industry's productivity has trailed that of other sectors for decades, and there is a $1.6 trillion opportunity to close the gap.

- Globally, construction sector labor-productivity growth averaged 1 percent a year over the past two decades, compared with 2.8 percent for the total world economy and 3.6 percent for manufacturing. In a sample of countries analyzed, less than 25 percent of construction firms matched the productivity growth achieved in the overall economies where they work over the past decade. Absent change, global need for infrastructure and housing will be hard to meet. If construction productivity were to catch up with the total economy, the industry's value added could rise by $1.6 trillion a year. That would meet about half of the world's annual infrastructure needs or boost global GDP by 2 percent. One-third of the opportunity is in the United States, where, since 1945, productivity in manufacturing, retail, and agriculture has grown by as much as 1,500 percent, but productivity in construction has barely increased at all.
- The new MGI Construction Productivity Survey confirms many reasons for this poor performance. The industry is extensively regulated, very dependent on public-sector demand, and highly cyclical. Informality and sometimes corruption distort the market. Construction is highly fragmented. Contracts have mismatches in risk allocations and rewards, and often inexperienced owners and buyers find it hard to navigate an opaque marketplace. The result is poor project management and execution, insufficient skills, inadequate design processes, and underinvestment in skills development, R&D, and innovation.
- The productivity performance of global construction is not uniform. There are large regional differences, and major variations within the industry. The sector splits broadly in two: large-scale players engaged in heavy construction such as civil and industrial work and large-scale housing, and a large number of firms engaged in fragmented specialized trades such as mechanical, electrical, and plumbing work that act as subcontractors or work on smaller projects like refurbishing single-family housing. The first group tends to have 20 to 40 percent higher productivity than the second. However, even in the more productive heavy construction sector there are endemic—potentially structural—challenges in meeting cost and schedule commitments on megaprojects, and players routinely subcontract specialized trades.
- Examples of innovative firms and regions suggest that acting in seven areas simultaneously could boost productivity by 50 to 60 percent. They are: reshape regulation; rewire the contractual framework to reshape industry dynamics; rethink design and engineering processes; improve procurement and supply-chain management; improve on-site execution; infuse digital technology, new materials, and advanced automation; and reskill the workforce. Parts of the industry could move toward a manufacturing-inspired mass-production system that would boost productivity up to tenfold. Industrial and infrastructure megaprojects need to instill holistic project-operating systems on-site and in design offices. The highly non-linear and challenging nature of megaprojects underscores the difficulty of, and necessity for, moving toward an industrialized project-operating system.
- Many barriers to higher productivity and ways of overcoming them have been known for some time, but the industry has been in deadlock. Most individual players lack both the incentives and the scale to change the system. However, there are forces lowering the barriers for change: rising requirements and demand in terms of volume, cost, and quality; larger-scale players and more transparent markets, and disruptive new entrants; more readily available new technologies, materials, and processes; and the increasing cost of labor with partial restrictions on migrant workers. Construction-sector participants should rethink their operating approaches to avoid being caught out in what could be the world's next great productivity story.

The productivity opportunity in construction

Construction matters for the world economy

... but has a long record of poor productivity



Construction-related spending accounts for

13% of the world's GDP

...but the sector's annual productivity growth has only increased

1% over the past **20 years**

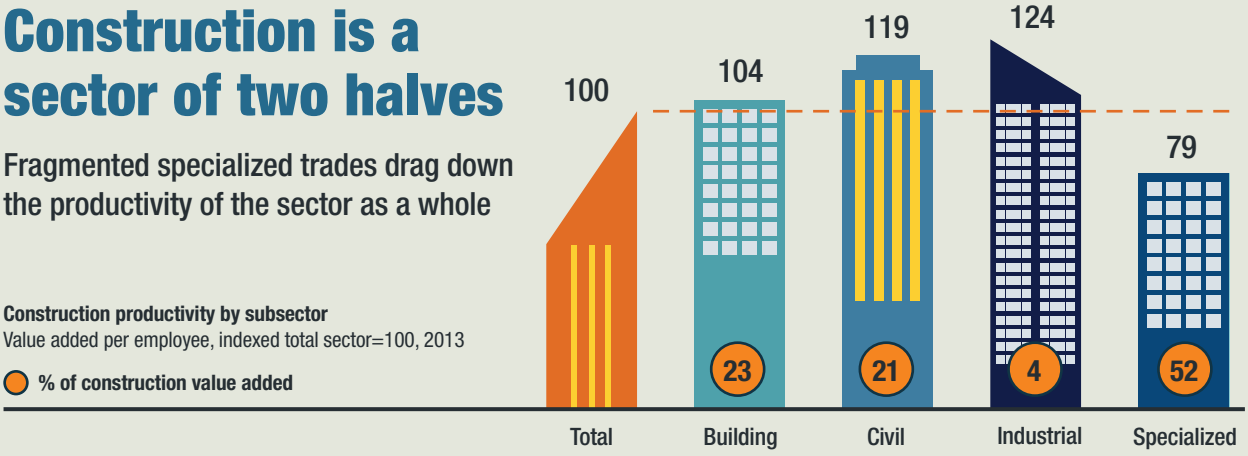
$1.6 trillion **of additional value added** could be created through higher productivity, meeting **half the world's infrastructure need**

Construction is a sector of two halves

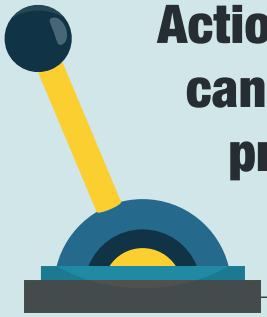
Fragmented specialized trades drag down the productivity of the sector as a whole

Construction productivity by subsector
Value added per employee, indexed total sector=100, 2013

% of construction value added



Action in seven areas can boost sector productivity by 50–60%



- Reshape regulation
- Rewire contracts
- Rethink design
- Improve procurement and supply chain
- Improve onsite execution
- Infuse technology and innovation
- Reskill workers

5–10x productivity boost

possible for some parts of the industry by moving to a manufacturing-style production system